

ABSTRACT

The methodology of the present invention is implemented by a system which defines concepts about which a respondent is required to demonstrate knowledge of a relationship. The concepts are represented by respondent-manipulable devices that are uniquely associated with the concepts, and the respondent is able to manipulate attributes of the devices to create an arrangement of the devices representative of the respondent's understanding of the relationship of the concepts with which the devices are associated. The attributes of the manipulated devices are recorded and converted into a response pattern based on the cognitive relationships of the devices as manipulated by the respondent. One or more predefined rubric patterns are associated with the constructed response item and define possible cognitive patterns of the concepts as represented by the devices. The response pattern is compared to the rubric pattern to identify matches between the response pattern and the rubric pattern. Implications, or outcomes, are associated with each rubric pattern defined, and a scoring result is created based on the implications of the rubric patterns that match the response patterns.